



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE

United States Patent and Trademark Office

Address: COMMISSIONER FOR PATENTS

P.O. Box 1450

Alexandria, Virginia 22313-1450

www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/520,917	01/11/2005	Aymeric Perchant	0501-1114	5145
22511	7590	06/01/2010		
OSHA LIANG I.L.P. TWO HOUSTON CENTER 909 FANNIN, SUITE 3500 HOUSTON, TX 77010			EXAMINER ALLISON, ANDRAE S	
			ART UNIT 2624	PAPER NUMBER
			NOTIFICATION DATE 06/01/2010	DELIVERY MODE ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

docketing@oshaliang.com

buta@oshaliang.com

Office Action Summary

Application No.

10/520,917

Applicant(s)

PERCHANT ET AL.

Examiner

ANDRAE S. ALLISON

Art Unit

2624

Period for Reply -- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on Amendment filed 02/23/2010.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-33 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-10, 17, 26-30 and 32-34 is/are rejected.
- 7) ☐ Claim(s) 11-16, 18-25 and 31 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date 12/02/2009
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date _____
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____

DETAILED ACTION

Response to Remarks

1. The Office Action has been made issued in response to amendment filed February 23, 2010. Claims 1-34 are pending. Applicant's arguments have been carefully and respectfully considered in light of the instant amendment, and are persuasive.

Claim Rejections – 35 USC section § 102&103

2. The declaration filed on June 22, 2009 under 37 CFR 1.131 has been considered and is effective to overcome the Shankar reference. Therefore, the rejection has been withdrawn. However, upon further consideration, a new ground(s) of rejection is made in view of Taleblou et al.

Claim Rejections - 35 USC § 102

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

4. Claims 1-3 and 32 are rejected under 35 U.S.C. 102(e) as being anticipated by Taleblou et al (US Patent No.: 6,157,748).

As to independent claim 1, Taleblou discloses a method for processing an image acquired by means of a guide consisting of a plurality of optical fibres (method for processing images endoscopy image – column 1, lines 20-23), characterized in that,

for each optical fibre, a zone corresponding to this optical fibre is isolated on the acquired, each zone is locally processed individually image (see column 9, lines 46-67 and column 10, lines 1-27 – where each fiber is isolated and processed individually), then the acquired image is reconstructed eliminating the pattern due to the optical fibres (see column 12, lines 1-34 and column 18, lines 39-46)

As to independent claim 32, this claim differs from claim 1 only in that claim 32 is apparatus whereas, claim 1 is method and the limitations means for isolating, means for locally processing each zone individually, and means for reconstructing additively recited. Taleblou clearly teaches a system (see Fig 3) comprising: means for isolating (39 – see Fig 3), means for locally processing each zone individually (39 – see Fig 3), and means for reconstructing (39 – see Fig 3).

As to claim 2, Taleblou teaches the method, characterized in that, in order to isolate each zone, a mask (see column 9, line 35), corresponding to the pattern of the fibres, is applied to the acquired image (see column 9, lines 46-67 and column 10, lines 1-27).

As to claim 3, Taleblou teaches the method, characterized in that the mask, corresponding to an image of the related components representing each fibre, is obtained during a stage of detecting the fibres from a reference image (see column 9, lines 46-67 and column 10, lines 1-27 – where a reference image is used to determine

the mask).

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. Claims 4-5 are rejected under 35 U.S.C. 103(a) as being unpatentable over Taleblou et al (US Patent No.: 6,157,748) in view of Harris et al (NPL Document titled: Hybrid Image Segmentation Using Watersheds and Fast Region Merging).

As to claim 4, Taleblou does not expressly disclose the method characterized in that the stage of detecting the fibres comprises the following stages: prefiltering of the reference image, segmentation by region, correction of segments having an abnormally large surface, and correction of segments having an abnormally small surface. Harris discloses an image segmentation algorithm (see abstract) which includes the steps of prefiltering of the reference image (see page 1687, section IV, [p][001], lines 1-9), segmentation by region (see page 1687, section IV, [p][001], lines 1-9), correction of segments having an abnormally large surface, and correction of segments having an abnormally small surface (see page 1687, section IV, [p][001], lines 9-18). At the time of the invention, it would have been obvious to a person of ordinary skill in the art to add to image segmentation algorithm of Harris to the method for processing images acquired through a fiber endoscope of Taleblou to partition the endoscopic image into

homogenous segments (spatially connected groups of pixels) such that the union of any two neighboring segments yields a heterogeneous segment (see page 1684, section 1, [p][001])

As to claim 5, note the discussion above, the combination of Taleblou and Haris as a whole does not teach the method, characterized in that the two corrections stages are interchangeable and are carried out in an iterative way. However, it would have been obvious for one skilled in the art to interchangeable the two corrections stages or carried the correction stage iterative to meet design required and carry out either correction method does solve any particular problem.

7. Claims 7-10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Taleblou et al (US Patent No.: 6,157,748) in view of Harris et al (NPL Document titled: Hybrid Image Segmentation Using Watersheds and Fast Region Merging) further in view of Miyazaki (US Patent No.: 4,926,257).

As to claim 7, note the discussion above, the combination of Taleblou/Haris combination does not teach the method, characterized in that the prefiltering stage comprises a morphological opening stage (see page 1687, section IV, [p][002], lines 1-9) followed by an image-inversion stage. However, the combination of Taleblou and Haris as a whole does not teach an image-inversion stage. Miyazaki teaches an image-inversion stage (see column 1, lines 30-42). At the time of the invention, it would have been obvious to a person of ordinary skill in the art to have combined the teaching of

Taleblou as modified by Harris and Miyazaki to inverse the acquired images before output the images.

As to claim 8, note the discussion above, Miyazaki the method characterized in that the image-inversion stage is preceded by a scalar-type anisotropic scattering stage (see column 1, lines 40-45).

As to claim 9, Taleblou teaches the method, characterized in that the prefiltering also comprises a stage during which an interpolation to the nearest neighbour is carried out in order to double the size of the image vertically and horizontally (see column 8, 52-60).

As to claim 10, note the discussion above, Haris teaches the method characterized in that, in the presence of a plurality of acquisition images, the prefiltering also comprises a temporal filtering stage (see abstract).

8. Claims 26-30 and 34 are rejected under 35 U.S.C. 103(a) as being unpatentable over Taleblou et al (US Patent No.: 6,157,748) in view of Nomami et al (US Patent No.: 5,764,809).

As to claim 17, Taleblou teaches the method, characterized in that the reconstruction of the acquired image involves a calibration stage in order to calibrate the flux of the acquired image, after local processing (see column 2, lines 52-58). However,

Taleblou does not disclose a mosaic reconstruction stage. Nomami discloses a method for forming new images (column 1, lines 12-15) including a mosaic reconstruction stage (see column 6, lines 26-39). At the time of the invention, it would have been obvious to a person of ordinary skill in the art to added the method for forming new images of Nomami to the method for processing images acquired through a fiber endoscope Taleblou processing multiple images acquired from the same object to eliminate abnormal data areas or provide a synthetic image having an enlarged field of view and improved resolution (see column 2, lines 7-12).

As to claim 34, note the discussion above, Nomami teaches the application of the image-processing method for super-resolution of an acquired image (see column 2, line 11).

As to claims 26-29, Taleblou does not expressly disclose the method characterized in that the reference image is an image obtained by placing a mirror opposite the guide, characterized in that the reference image is an image obtained from a homogeneous scattering medium, characterized in that the reference image is an image obtained from a homogeneous fluorescent medium and characterized in that the reference image is an image obtained from the backscattering inside the bundle of optical fibres constituting the guide. However, it would have been obvious for one skilled in the art to acquire the reference image by placing a mirror opposite the guide or from a homogeneous scattering medium or from a homogeneous fluorescent medium or from

the backscattering inside the bundle of optical fibres constituting the guide because these are well known method for acquire images and backscattering for example has the characteristic of detecting optical faults.

As to claim 30, Taleblou teaches the method, characterized in that the reference image is the acquired image (note that the fiber mask is generated - column 10, lines 1-27).

Allowable Subject Matter

9. Claims 11-16, 18-25 and 31 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

The following is an examiner's statement of reasons for allowance: None of the prior art teaches or fairly suggest: "characterized in that, also applying the mask on an image representing a parasite background, the photon flux detected for each zone of the background image is also calculated, and the flux value of each zone of the corresponding background image is subtracted from each flux value of each zone of the acquired image, and the bias correction is carried out on the result of this subtraction".

Inquiries

Any inquiry concerning this communication or earlier communications from the examiner should be directed to ANDRAE S. ALLISON whose telephone number is

(571)270-1052. The examiner can normally be reached on Monday-Friday, 8:00 am - 5:00 pm, EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Vu Le can be reached on (571) 272-7223. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/A. S. A./
Examiner, Art Unit 2624

/Vu Le/
Supervisory Patent Examiner, Art Unit 2624